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PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number (Optional)	
		1856-42801 (40183)	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 101.11(a)(2)]. on <u>March 28, 2007</u> Signature <u>Beatrice C. Ortego</u> Typed or printed name <u>Beatrice C. Ortego</u>		Application Number	Filed
		10/706,645	November 12, 2003
		First Named Inventor	
		Charles R. Rapier	
		Art Unit	Examiner
		1754	Paul A. Wartalowicz
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.			
This request is being filed with a notice of appeal.			
The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.			
I am the			
<input type="checkbox"/> applicant/inventor.			
<input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)			
<input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>54,350</u>			
<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
		<u>Beatrice C. Ortego</u> Signature	
		<u>Beatrice C. Ortego</u> Typed or printed name	
		<u>281-293-4751</u> Telephone number	
		<u>March 28, 2007</u> Date	
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.			

<input checked="" type="checkbox"/>	*Total of <u>1</u> forms are submitted.
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This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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REASONS FOR REQUESTING PRE-APPEAL BRIEF REVIEW

Applicants filed a Response and claim amendment under 37 C.F.R. 1.116 on January 29, 2007 (hereinafter '*Response AF*') in reply to a Final Rejection dated November 28, 2006 (hereinafter '*Final Rejection*'). Only Claim 40 (under examination) and 50 (withdrawn) were amended. The Examiner sent an Advisory Action on February 27, 2007 to Applicants, in which the Examiner entered the claims amendment into the record for the purpose of appeal, further withdrew a §112 rejection on Claim 40, but maintained the final rejection of Claims 1-11, 13-25, 40-49, 76-77, 80-81 and 83-90 under 35 U.S.C. § 103(a) as being obvious over the combination of U.S. Patent 6,015,285 (hereinafter *McCarty*) in view of U.S. Patent 6,830,596 (hereinafter *Deckman*) and U.S. Patent 4,906,176 (hereinafter *Yamashita*); and of Claim 12 under 35 U.S.C. §103(a) as being obvious over the combination of *McCarty* in view of *Deckman* and *Yamashita*, and further in view of U.S. Patent 4,793,797 (hereinafter *Kato*).

Claims 1-9, 11-13, 16-35, 37-40, 42-55, 57, 58, 60-74, 76-81 & 83-90 are currently pending in the Application, and are currently listed in the Claim Amendment on Pages 2-13 of the *Response AF*. Claims 1-9, 11-13, 16-25, 40, 42-49, 60-74, 76-77, 80-81 & 83-90 have been examined and twice rejected, while Claims 26-35, 37-39, 50-55, 57-58, 60-74, 78-79 stand withdrawn from examination as non-elected claims from a Restriction Requirement dated January 25, 2006. Applicants have requested the rejoinder of the withdrawn claims upon allowance of Claims 1 and 40.

Rejections under 35 U.S.C. § 103(a) over *McCarty* in view of *Deckman* and *Yamashita* and over *McCarty* in view of *Deckman*, *Yamashita* and *Kato*

In making the rejection, the Examiner made the following remark with respect to all of these rejected claims.

“... It would have been obvious to one of ordinary skill in the art to provide a support comprising a hexaaluminate and a perovskite structure in *McCarty* because *McCarty* teaches these supports individually and it is known in the art to combine hexaaluminates and perovskites in supports (col.6, lines 24037) as taught by *Deckman*”. [*Final Rejection* on last 4 lines on Page 5 and on Lines 6-9 on Page 7]

Applicants respectfully traverse the Examiner's rejection, and respectfully disagree that the combination of these three references renders the claims unpatentable. The withdrawal of the § 103 rejections on such claims is respectfully requested.

THE COMBINATION OF REFERENCES FAILS TO ESTABLISH A PRIMA FACIE CASE OF OBVIOUSNESS
AGAINST CLAIMS 1-25, 40-49, 76-77, 80-81 & 83-90 BECAUSE IT DOES NOT DISCLOSE A CATALYST SUPPORT
COMPRISING THE COMBINATION OF THREE DISTINCT CRYSTALLINE PHASES

McCarty does not disclose the combination of an (α and/or θ) alumina phase, a rare earth aluminate of a hexaaluminate or hexaaluminate-like structure, and a rare earth aluminate of a perovskite or perovskite-like structure in a catalyst support, as recited in independent Claims 1, 40 and 86. On Page 5 of the *Final Rejection*, the Examiner has acknowledged that *McCarty* only discloses the individual use of hexaaluminate structure or a perovskite structure as a combustion catalyst support material. The Examiner has used *Deckman* to provide the combination of hexaaluminate and perovskite in a catalyst support by pointing to Col. 6 lines 24-37 in *Deckman*.

In rebuttal, Applicants would like to reiterate the arguments laid out in the *Response AF*. Applicants have already expressed their disagreement concerning *McCarty*'s alleged disclosure of the hexaaluminate and alpha-alumina combination in a catalyst support in *McCarty* Col. 3 lines 25-31. Please see *Response AF* on lines 27-30 of Page 16 through lines 1-18 of Page 17 and on lines 1-6 on Page 18. Moreover, Applicants submits that *McCarty* does not disclose the presence of alpha-alumina in a catalyst support, but rather in a diffusion layer *applied over* a catalytic metal.

Furthermore, Applicants have already expressed their disagreement concerning *Deckman*'s alleged disclosure of a hexaaluminate and perovskite combination in a catalyst support in *Deckman* Col. 6 lines 24-37 – Please see *Response AF* on lines 12-35 of Page 18 through lines 1-3 on Page 19.

Additionally, in a telephone conversation with the undersigned initiated by the Examiner on February 22, 2006 after his review of the *Response AF* before the issuance of the *Advisory Action*, the Examiner further pointed out to the undersigned that another passage in *Deckman* in Col. 3 lines 50-53 discloses the possible combination of hexaaluminates and perovskites in a membrane material.

“...Suitable membrane materials are ceramics such as alumina and zirconia silicon carbide, silicon nitride, or combinations thereof, including for example, Al_2O_3 , ZrO_2 , MgO , TiO_2 , La_2O_3 , SiO_2 , perovskites, hexaaluminates, and metals such as nickel and high nickel content alloys, and cermets.” [*Deckman*. Col. 3 lines 50-53]

The Examiner stated that this disclosure from *Deckman* of “[s]uitable membrane materials are ceramics [...] or combinations thereof, including for example, [...] perovskites, hexaaluminates, ...” was sufficient to provide the limitation missing from *McCarty*.

Because *Deckman* is the only reference which allegedly provides the combination of a hexaaluminate and a perovskite in a catalyst support to supplement the deficient disclosure of *McCarty*, Applicants would like to address this disclosure since it was not addressed in the previous *Response AF*.

Applicants disagree that such disclosure reasonably conveys to the artisan the combination of these two materials in a support. Arguably, the brevity of this short paragraph and the odd positioning of the expression 'or combinations thereof' which is so frequently used in patent drafting seem to create some ambiguity in what *Deckman* meant to include in such combinations. Generally, the expression 'or combinations thereof' refer to a list of elements which precedes it, not follows it. Thus, another reading of this passage could be that the expression 'or combinations thereof' refers to the preceding list (alumina and zirconia silicon carbide, silicon nitride). Applicants thus submit that an artisan may not get a clear and unambiguous reading in *Deckman* of a combination of a hexaaluminate and a perovskite in a catalyst support, and further does not get any guidance from *Deckman* on how to pick such combination from the list of materials provided in Col. 3 lines 50-53.

Applicants therefore assert that *Deckman* fails to provide in a clear manner what is missing from *McCarty*, and cannot be relied upon to remedy the deficiency of *McCarty*.

The Examiner has used *Yamashita* and further *Kato* (solely for Claim 12) to provide other teachings in a catalyst support in which *McCarty* was deficient. But *Yamashita* and *Kato* were not relied upon to provide the combination of the three crystalline phases in the support.

Applicants submit that, for at least the reasons stated above, the combination of *McCarty* with *Deckman* and *Yamashita* fails to provide a *prima facie* case of obviousness as required by **MPEP 2143.03**, for all of the elements recited in the independent Claims 1, 40 and 86 and *a fortiori* also of their respective dependent Claims 2-11, 13-25, 41-49, 76-77, 80-81, 83-85 and 87-90, which were rejected on the same basis. Similarly, the combination of *McCarty* with *Deckman*, *Yamashita* and *Kato* fails to provide all of the elements of Claim 12 dependent from Claim 1.

THE COMBINATION OF REFERENCES FAILS TO ESTABLISH A PRIMA FACIE CASE OF OBVIOUSNESS AGAINST CLAIMS 1-25, 40-49, 76-77, 80-81 & 83-90 BECAUSE IT DOES NOT PROVIDE A MOTIVATION TO MODIFY THE SUPPORT AND CATALYST OF McCARTY AS SUGGESTED BY THE EXAMINER

Applicants respectfully disagree with the Examiner suggestion of modifying *McCarty*'s support and combustion catalyst by using a mixture of perovskites and hexaaluminates as taught by *Deckman* (instead of using a single material) in the support layer, for there is no motivation or suggestion in the references themselves to modify *McCarty*'s support and catalyst to arrive to the present claims. To the contrary, *McCarty* expresses the non-trivial nature of formulating such combustion catalysts and teaches away from changing formulation without risking many failed attempts.

Indeed, *McCarty* goes to great length explaining the difficulties encountered in developing a commercially-viable catalytic combustion system and further explaining the underlying reasons for failures of previous attempts (see *McCarty* Col. 1 lines 15-28). *McCarty* expresses that the *successful combustion catalysts require extraordinary methods* (see Col. 4 lines 43-45) and further denigrates previous combustion catalysts (see Col. 2 lines 63-65). Thus, there is a clear signal from *McCarty* to the artisan that improvements in catalysts, specifically for natural gas combustion, is not a trivial task. It would certainly be a task that should not be done by merely picking and combining in a random fashion materials to build a successful combustion catalyst. For assistance, *McCarty* includes in Table 1 a road-map of desired materials to be used for each catalyst component (including the support) and the reason for each material's use to provide a desired property to the catalyst component. But there is no suggestion nor recommendation from *McCarty* on using a mixture of desired materials in the catalyst component and further no guidance on what the impact on the desired property would be if an artisan were to mix more than one desired material in the catalyst component. Table 2 in *McCarty* only shows single-material supports.

Thus assuming, *arguendo*, that an artisan would find in *Deckman* the combination of perovskites and hexaaluminates in a support, Applicants fail to see how the artisan would be compelled to modify *McCarty*'s catalyst with this combination, when *McCarty* clearly states to tread carefully in formulating such catalyst for risk of not achieving success (e.g., catalyst degradation) like the previous unsuccessful combustion catalysts for natural gas.

With respect to the alpha-alumina presence in the support, as already stated in *Response AF 1-29-07* (see Lines 1-16 on Page 16), Applicants believe that *McCarty* only discloses the use of α -alumina as a diffusion barrier layer in the catalyst composition to apply over the catalytic material (see Table 1 on Col. 5 line 29; Col. 7 lines 66-67) and *McCarty* does not envision using α -alumina to *support* the catalytic ingredient. Applicants have already expressed the lack of motivation in modifying *McCarty*'s catalyst by further including α -alumina into the support layer and would like to reiterate the argument laid out on lines 22-33 on Page 20 in the *Response AF*. By disclosing the poorer performance of a Pd catalyst supported on α -alumina and its failure to ignite the reactant mixture in a methane combustion test (*Yamashita* FIG. 5 curve 21 & Col. 11 lines 15 & 51-52), *Yamashita* provides the supporting evidence that the inclusion of α -alumina in the support would not be consistent with *McCarty*'s teaching of what the support should provide (maintenance of catalytic metal dispersion for a longer period of time).

For at least the reasons stated above, there is no motivation from the references themselves in modifying *McCarty*'s support and catalyst without a suggestion from the art itself on how to choose the proper combinations of materials listed by *McCarty* for achieving a successful formulation of a catalyst with the longevity that *McCarty* expects. Applicants submit that the combination of these references fails to provide a *prima facie* case of obviousness as required by MPEP 2143.01.

Withdrawn claims of non-elected Groups II and III

Applicants believe that the rejoinder practice based on MPEP §821.04(b) is applicable for withdrawn Claims 26-39 and 78-79 and Claims 50-75 and 82 as non-elected claims of Group II and Group III identified in the Restriction Requirement dated January 25, 2006, for they contain the allowable subject matter contained in the examined independent Claims 1 and 40, respectively.

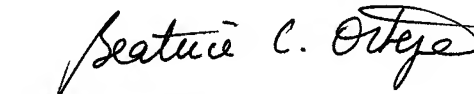
Conclusion

Applicants submit that *prima facie* cases of obviousness were not properly set forth in the *Final Rejection* as required for MPEP §2143.01 and 2143.03. As such, Applicants believe that all pending claims are patentable over the art of record and respectfully request the withdrawal of the 103(a) rejections and their allowance.

In an effort to simplify the issues for consideration by the panel, Applicants have limited this discussion to the clear errors in the rejections of the independent Claims 1, 40 and 86. Because the rejected dependent claims contain all of the limitations of the allowable independent claims, these dependent claims are allowable as a matter of law. However, Applicants do not acquiesce to the Examiner's interpretation of the references as discussed on Pages 5-9 of the *Final Rejection* which is directed to the various aspects of the dependent claims, and respectfully reserve the opportunity to clarify the teachings of such references in the future if necessary.

Respectfully submitted,

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